Message

From: DeSantis, Mike [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=674933A233B24AC88C74508EC930B5F6-DESANTIS, MIKE]
Sent: 8/20/2020 3:07:10 PM
To: Tully, Jennifer [Tully.Jennifer@epa.gov]; Schock, Michael [schock.michael@epa.gov]
Subject: Peotone x-section SEM/EDS maps
Attachments: ILPEMAN1-Pb A2-2a SOI1.docx; ILPEMAN1-Pb A2-2a SOI2.docx; ILPEMAN1-Pb A2-2a SOI3.docx; ILPEMAN1-Pb A2-2a SOI4.docx; ILPEMAN1-Pb A2-2a SOI5.docx; ILPEMAN1-Pb A2-2a SOI6.docx; ILPEMAN1-Pb A2-2a SOI7.docx; ILPEMAN1-Pb A2-2a SOI1_spectrum.docx; ILPEMAN1-Pb A2-2a SOI2_spectrum.docx; ILPEMAN1-Pb A2-2a SOI3_spectrum.docx; ILPEMAN1-Pb A2-2a SOI4_spectrum.docx; ILPEMAN1-Pb A2-2a SOI5_spectrum.docx; ILPEMAN1-Pb A2-2a SOI6_spectrum.docx; ILPEMAN1-Pb A2-2a SOI7_spectrum.docx

I pulled the data off the SEM computer when I went in earlier this week. I haven't ion-milled the cross-section yet – not even sure how that will go, because the scale is so think. For this one, I cut a 1mm-thick slice off of one of the mechanically polished pieces than I've sent you Keyence images of previously. The mass of epoxy charges like hell, which limits the areas that can be analyzed. Will have to do some more sample prep – maybe carbon coating.

Even with that, the maps show that P and Ca (along with Pb) are enriched in a thin layer sitting on top of the litharge (SOI1, SOI2, SOI6, SOI7). Maybe another Ca-substituted hydroxypyromorphite example? The layer overlying those (reddish-orange in the Keyence images) contains Fe (surprise…)

SOI3, SOI4, and SOI5 are maps of the outer, cream-colored, botryoidal layer. P, Fe, Mg, some Ca. Not really much Pb. SOI5 shows some local enrichment of Al and Si in the center area of one of the botryoidal deposits. This corresponds to a grayish/whitish colored material in the Keyence images.

Mike DeSantis
U.S. Environmental Protection Agency
ORD/CESER/WID/DWMB
26 W. Martin Luther King Dr., MS: 689
Cincinnati, OH 45268
Tel: 513-569-7939
DeSantis.Mike@epa.gov